

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference TS 5572 PCT	FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/EP2004/051349	International filing date (day/month/year) 02.07.2004	Priority date (day/month/year) 04.07.2003	
International Patent Classification (IPC) or national classification and IPC C10G9/00, C10G11/00, C10G47/00, C10G65/00, C10G65/14, C10G69/00, C10G69/14, C07C1/04			
Applicant SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V.			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 7 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).			
4. This report contains indications relating to the following items: <div style="margin-left: 20px;"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input checked="" type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input checked="" type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application </div>			
Date of submission of the demand 25.02.2005		Date of completion of this report 16.09.2005	
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tlx 31 651 epo nl Fax: +31 70 340 - 3016 </div> </div>		Authorized Officer Gilliquet, J-N Telephone No. +31 70 340-	



**INTERNATIONAL PRELIMINARY REPORT
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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-28 as originally filed

Claims, Numbers

1-15 as originally filed

Drawings, Sheets

1/3-3/3 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 15

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 15

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

☐ has not been furnished

☐ does not comply with the standard

the computer readable form

☐ has not been furnished

☐ does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☐ See separate sheet for further details

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Box No. IV Lack of unity of invention

1. ☒ In response to the invitation to restrict or pay additional fees, the applicant has:
- ☐ restricted the claims.
 - ☐ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☒ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
 - ☒ the parts relating to claims Nos. 1-14 .

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-14
	No: Claims	
Inventive step (IS)	Yes: Claims	1-14
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

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The following document is referred to in this communication:

D1 : WO 97/21788 A (EXXON RESEARCH ENGINEERING CO) 19 June 1997
(1997-06-19)

Re Item IV.

The application lacks unity within the meaning of Article 3(4)(iii) PCT and Rule 13 PCT for the following reasons.

There are two independent claims:

Claim 1 relating to a process to prepare base oils from a Fischer-Tropsch synthesis product

Claim 15 relating to a process to prepare a waxy raffinate fraction from a Fischer-Tropsch synthesis product

It appears that within these independent claims unity does not exist for the following reasons:

- A) The common/corresponding technical feature between independent claim 1 on one hand and claim 15 on the other hand is a process to prepare a waxy raffinate fraction from a Fischer-Tropsch synthesis product by
- (1) separating the Fischer-Tropsch synthesis product into three fractions:
 - (i) one boiling in the middle distillate range and below
 - (iii) one heavy ends fraction
 - (ii) a waxy raffinate fraction boiling between these fractions
 - (2) subjecting the heavy ends fraction to a conversion step

Document D1 (see claim 1 and par. 2 of p.8) describes such a process.

Therefore, the common/corresponding technical feature is not a special (new and inventive) technical feature. Thus, no "common" or "corresponding" special technical features could be found between the independent claims 1 and 15, as required by Rule 13.2 PCT.

B) Also the common problem underlying the invention is the provision of an improved process for the production of base oils (see page 1 last par. - page 2 par. 1 of the present application). Improving the yield of base oils is a generally known desire/problem in hydrocarbon treatment/conversion and can not serve as a general inventive concept linking the independent claims.

No other common problem could be found which could serve as the general inventive concept required by 13.1 PCT.

Consequently, these claims are not unitary according to Rule 13 PCT.

C) Hence it is considered that the following separate inventions or groups of inventions are not so linked as to form a single general inventive concept:

Group I: Independent claim 1 and dependent claims 2-14.

Group II: Independent claim 15.

Re Item V.

- 1 Document D1, which is considered to represent the most relevant state of the art, discloses (see claim 1 and par. 2 of p.8 of D1) a process to prepare base oils from a Fischer-Tropsch synthesis product by
 - (a) separating the Fischer-Tropsch synthesis product into three fractions:
 - (i) one boiling in the middle distillate range and below
 - (iii) one heavy ends fraction
 - (ii) an intermediate base oil precursor fraction boiling between these fractions
 - (c) subjecting the heavy ends fraction to a conversion step

From this process, the subject-matter of independent claim 1 differs in that: steps (b), subjecting the base oil precursor fraction (ii) to a catalytic hydroisomerisation and catalytic dewaxing process to yield one or more base oil grades, and step (d), subjecting the high boiling fraction (v) of fraction (iv) to a catalytic hydroisomerisation and catalytic dewaxing process to yield one or more base oil grades.

1.1 The subject-matter of claim 1 is therefore novel (Article 33(2) PCT)

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The problem to be solved by the present invention may be regarded as an improved process providing a higher yield to base oils (see present description, p.2 par.3 and p.28 par.1).

- 1.2 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) because no documents of the prior art on file discloses these distinguishing features nor gives a hint to their effect on the yield to base oils.
- 2 Claims 2-14 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.